

***Remarks***

Reconsideration of this Application is respectfully requested.

Claims 45-59 and 61-84 are pending in the application, with claims 45, 46, 58, 59 and 72 being the independent claims.

***I. Obviousness-Type Double Patenting***

The Examiner has maintained the rejection of claims 45-59, 61-71 and 81-84 under the judicially-created doctrine of obviousness-type double patenting. *See* Paper No. 28, Continuation Sheet. Applicants respectfully request that this rejection be held in abeyance until the remaining outstanding issues in this application are resolved.

***II. Claim Rejection Under 35 USC § 102***

The Examiner has maintained the rejection of claims 72, 76 and 77 under 35 USC § 102(b) as allegedly being anticipated by Bogoslovakaia *et al.*, *Epidemiol. Immunobiol.* 12:65-68 (1984) ("Bogoslovakaia"). *See* Paper No. 28, Continuation Sheet. Applicants respectfully traverse this rejection.

An anticipation rejection under 35 USC § 102 requires a showing that each limitation of a claim must be found in a single reference, practice, or device. *See In re Donohue*, 766 F.2d 531, 226 USPQ 619, 621 (Fed. Cir. 1985). Applicants maintain their position that Bogoslovakaia does not anticipate claims 72, 76 and 77 because Bogoslovakaia does not teach or suggest all of the elements of Applicants' claims.

Applicants have previously noted that Claims 72, 76 and 77 are directed to *competent E. coli* and that there is no indication that the *E. coli* disclosed in Bogoslovakaia are competent. Applicants therefore maintain that Bogoslovakaia does not teach or suggest *E. coli* having all of the characteristics of the *E. coli* that are encompassed by claims 72, 76 and 77. *See* Applicants' Amendment and Reply filed on July 29, 2002, page 11. In response to Applicants' assertion, the Examiner stated:

Applicant defines competent cells as "cells having the ability to take up and establish an exogenous DNA molecule" (p. 9, lines 13-14). The cells used in Bogoslovakaia *et al* appear to comprise plasmids (p. 65, bottom of first column and bridge to second column and the table on p. 66), clearly indicative that they are competent. Furthermore, it is extremely well known that *E. coli* cells are competent and can be transformed in a number of different ways, including heat-shock, electroporation or liposomes.

*See* Paper No. 28, Continuation Sheet. Applicants respectfully disagree with the Examiner's conclusion.

The Examiner has concluded that, merely because the *E. coli* in Bogoslovakaia appear to contain plasmids, these bacterial cells must be competent. This is an erroneous conclusion. It is well known in the art that, once a bacterium takes up a plasmid by transformation, that bacterium then divides and, in general, passes a duplicate copy of the plasmid to its progeny. Although the first bacterium that took up the plasmid may have been "competent" at one point in time, it is not necessarily the case that it will remain competent following the transformation procedure or that its progeny cells are competent. In fact, a bacterium harboring an exogenous plasmid, just like a bacterium that lacks plasmids, must be made competent before it can take up any additional plasmids. *See* discussion

immediately below. Thus, simply because certain bacteria in Bogoslovakaia appear to contain plasmids, it cannot be concluded that these bacteria are competent.

Moreover, Applicants respectfully disagree with the Examiner's assertion that "it is extremely well known that *E. coli* cells are competent and can be transformed in a number of different ways." Applicants agree that it is well known that *E. coli can be made competent*; however, absent some kind of treatment, preparation or manipulation, *E. coli* cells are not recognized as being inherently competent as implied by the Examiner's statement.

The need for some kind of treatment or preparation in order to render *E. coli* cells competent is set forth in *Sambrook et al.*, "Preparation and Transformation of Competent *E. coli*," in *Molecular Cloning A Laboratory Manual*, Sambrook *et al.*, eds., Cold Spring Harbor Laboratory Press, pp. 1.74-1.84 (1989) (copy enclosed as Exhibit 1) (hereinafter "Sambrook"). As outlined by Sambrook, regardless of the method by which exogenous DNA is introduced into *E. coli*, the cells must be manipulated and prepared in some manner. For example, to prepare cells for electroporation (one of the easiest methods of transformation), "[b]acteria are grown to mid-log phase, chilled, centrifuged, and then washed extensively with low-salt buffer to reduce the ionic strength of the cell suspension . . . The cells are then resuspended in 10% glycerol at a concentration of  $3 \times 10^{10}$  cells/ml, frozen in dry ice, and stored at  $-70^{\circ}\text{C}$ ." See Sambrook at page 1.75. More extensive preparatory steps are necessary to prepare cells for transformation by means other than electroporation. See, *e.g.*, Sambrook at pages 1.76-1.84.

There is no evidence to suggest that the *E. coli* disclosed in Bogoslovakaia have been treated in any manner such that they are rendered competent. Nor is there any apparent

suggestion that the Bogoslovakaia strains *should* be made competent, especially since some of the strains listed already contain plasmids (and therefore would not need to be made competent to take up additional plasmids). Absent specific evidence that the *E. coli* of Bogoslovakaia have been specifically treated to be made competent, one skilled in the art would reasonably conclude that these strains are in fact *not* competent.

Aside from the fact that there is no evidence that the *E. coli* in Bogoslovakaia are competent, Applicants note that the *E. coli* of Applicants' claims are distinct from the Bogoslovakaia strains in other respects. In particular, claims 72, 76 and 77 are directed to competent *E. coli* possessing a membrane having an increased unsaturated fatty acid content relative to total fatty acid content. The abstract of Bogoslovakaia states: "The viability of microbial cells in the air has been shown to increase with the increase of the pool of cyclopropane acids and the palmitic acid/palmitoleic acid ratio in the cells, irrespective of their genotype and the phase of their growth." Applicants note that palmitic acid is a saturated fatty acid and palmitoleic acid is an unsaturated fatty acid. Thus, an increase in the palmitic acid/palmitoleic acid ratio, as recited in the abstract of Bogoslovakaia, represents an increase in *saturated* fatty acid content relative to *unsaturated* fatty acid content, and consequently, an increase in saturated fatty acid content relative to *total* fatty acid content. This is the opposite of the situation that exists in the membranes of the *E. coli* encompassed by Applicants' claims, *i.e.*, an increased *unsaturated* fatty acid content relative to total fatty acid content. Thus the abstract of Bogoslovakaia does not teach or suggest *E. coli* possessing the properties of the *E. coli* that are encompassed by Applicants' claims.

Likewise, the table on page 66 of Bogoslovakaia does not teach or suggest *E. coli* possessing a membrane having an increased unsaturated fatty acid content relative to total

fatty acid content. The percentages of saturated fatty acids are listed under the columns labeled "14:0," "16:0," "17:0" and "19:0." The percentages of unsaturated fatty acids are listed under the columns labeled "16:1 $\omega$ 7," "18:1 $\omega$ 9" and "18:1 $\omega$ 7."<sup>1</sup> For all of the strains listed on the table in Bogoslovakaia, the total percentage of saturated fatty acids is *greater than* the total percentage of unsaturated fatty acids (compare the sum of the percentages under the columns labeled "14:0," "16:0," "17:0" and "19:0," to the sum of the percentages under the columns labeled "16:1 $\omega$ 7," "18:1 $\omega$ 9" and "18:1 $\omega$ 7"). Thus, the strains listed in Bogoslovakaia do not fall within the scope of Applicants' claims because none the strains possess a membrane having an increased unsaturated fatty acid content relative to total fatty acid content.

In summary, Bogoslovakaia does not and cannot anticipate Applicants' claims because (1) there is no evidence to suggest that the Bogoslovakaia strains are competent, and (2) the Bogoslovakaia strains do not possess a membrane having an increased unsaturated fatty acid content relative to total fatty acid content. Since Bogoslovakaia does not teach or suggest *E. coli* having all of the characteristics of the *E. coli* that are encompassed by claims 72, 76 and 77, Applicants respectfully request that the rejection of these claims under 35 USC § 102(b) be reconsidered and withdrawn.

---

<sup>1</sup>The convention for describing fatty acids is to state the number of carbon atoms in the fatty acid chain followed by a colon and the number of double bonds in the molecule. When a double bond is present, the position of the double bond is sometimes indicated by a numeral listed after the omega symbol (" $\omega$ "). Thus, 14:0 represents a fatty acid containing 14 carbon atoms and no double bonds, *i.e.*, a saturated fatty acid. 16:1 $\omega$ 7, by contrast, represents a fatty acid having 16 carbon atoms with a single double bond at the carbon-7 position, *i.e.*, an unsaturated fatty acid.

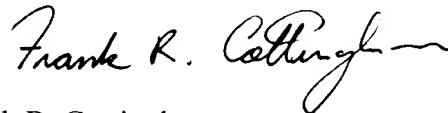
***Conclusion***

Applicants respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Supplemental Reply is respectfully requested.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.



Frank R. Cottingham  
Attorney for Applicants  
Registration No. 50,437

Date: 9/30/02

1100 New York Avenue, N.W.  
Suite 600  
Washington, D.C. 20005-3934  
(202) 371-2600